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SPACE OPERATIONS CONTROL CENTER TMX-51398

# SATELLITE SITUATION REPORT

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VOL 4, NO. 1

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GODDARD SPACE FLIGHT CENTER

GREENBELT, MD.

SPACE OPERATIONS CONTROL CENTER  
GODDARD SPACE FLIGHT CENTER  
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

VOLUME 4 NO. 1

JANUARY 15, 1964

SATELLITE SITUATION REPORT

THE FOLLOWING REPORT REFLECTS DATA COMPUTED AND COMPILED BY THE  
GODDARD SPACE FLIGHT CENTER, NORAD, AND SMITHSONIAN ASTROPHYSICAL  
OBSERVATORY AS OF 1200Z ON JANUARY 15, 1964.

| OBJECT        | OBJECTS IN ORBIT |              |              |            | SOURCE | CODE NAME   | PERIGEE TRANSMITTING |            |           |  |
|---------------|------------------|--------------|--------------|------------|--------|-------------|----------------------|------------|-----------|--|
|               | LAUNCH           | NODAL PERIOD | INCLI-NATION | APOGEE Km. |        |             | Km.                  | FREQ(MC/S) |           |  |
| 1958 LAUNCHES |                  |              |              |            |        |             |                      |            |           |  |
| ALPHA 1       | 1 FEB            | 104.7        | 33.19        | 1629       | US     | EXPLORER 1  |                      | 342        |           |  |
| BETA 1        | 17 MAR           | 138.3        | 34.26        | 4325       | US     | ROCKET BODY |                      | 652        |           |  |
| BETA 2        | 17 MAR           | 133.8        | 34.33        | 3925       | US     | VANGUARD 1  |                      | 661        | 108.012 & |  |
| 1959 LAUNCHES |                  |              |              |            |        |             |                      |            |           |  |
| ALPHA 1       | 17 FEB           | 125.3        | 32.86        | 3307       | US     | VANGUARD 2  |                      | 537        |           |  |
| ALPHA 2       | 17 FEB           | 129.6        | 32.94        | 3647       | US     | ROCKET BODY |                      | 573        |           |  |
| ETA 1         | 18 SEP           | 129.7        | 33.33        | 3720       | US     | VANGUARD 3  |                      | 513        |           |  |
| MU 1*         | 2 JAN            | 450 D        | 0.01         | 1.315AU    | USSR   | LUNIK 1     |                      | 0.9766AU   |           |  |
| NU 1*         | 3 MAR            | 398 D        | 1.30         | 1.142AU    | US     | PIONEER 4   |                      | 0.9871AU   |           |  |
| IOTA 1        | 13 OCT           | 101.1        | 50.33        | 1075       | US     | EXPLORER 7  |                      | 551        |           |  |
| IOTA 2        | 13 OCT           | 100.9        | 50.32        | 1047       | US     | ROCKET BODY |                      | 559        |           |  |
| 1960 LAUNCHES |                  |              |              |            |        |             |                      |            |           |  |
| ALPHA 1*      | 11 MAR           | 312 D        | 3.35         | 0.995AU    | US     | PIONEER 5   |                      | 0.8061AU   |           |  |
| BETA 1        | 1 APR            | 99.0         | 48.39        | 736        | US     | ROCKET BODY |                      | 697        |           |  |
| BETA 2        | 1 APR            | 99.1         | 48.38        | 747        | US     | TIROS 1     |                      | 693        |           |  |
| BETA 3        | 1 APR            | 97.8         | 48.48        | 705        | US     | NONE        |                      | 610        |           |  |
| BETA 4        | 1 APR            | 99.8         | 48.15        | 803        | US     | NONE        |                      | 704        |           |  |
| GAMMA 2       | 13 APR           | 94.0         | 51.29        | 600        | US     | TRANSIT 1B  |                      | 346        |           |  |
| GAMMA 4       | 13 APR           | 96.7         | 51.24        | 720        | US     | NONE        |                      | 487        |           |  |
| EPSILON 3     | 15 MAY           | 91.6         | 64.98        | 448        | USSR   | NONE        |                      | 255        |           |  |
| ZETA 1        | 24 MAY           | 94.2         | 33.04        | 491        | US     | MIDAS 2     |                      | 480        |           |  |
| ETA 1         | 22 JUN           | 101.6        | 66.68        | 1058       | US     | TRANSIT 2A  |                      | 613        |           |  |
| ETA 2         | 22 JUN           | 101.6        | 66.68        | 1053       | US     | GREB        |                      | 615        |           |  |
| ETA 3         | 22 JUN           | 101.4        | 66.65        | 1035       | US     | ROCKET BODY |                      | 614        |           |  |

# OBJECTS IN ORBIT

| OBJECT | CODE NAME | SOURCE | LAUNCH | NODAL PERIOD | INCLI-NATION | APOGEE Km. | PERIGEE Km. | TRANSMITTING FREQ. (MC/S) |
|--------|-----------|--------|--------|--------------|--------------|------------|-------------|---------------------------|
|        |           |        |        |              |              |            |             |                           |

## 1960 LAUNCHES (CONT'D)

|        |              |    |        |                           |       |      |      |  |
|--------|--------------|----|--------|---------------------------|-------|------|------|--|
| IOTA 1 | ECHO 1       | US | 12 AUG | 114.7                     | 47.28 | 1652 | 1238 |  |
| IOTA 2 | ROCKET BODY  | US | 12 AUG | 118.0                     | 47.25 | 1696 | 1492 |  |
| IOTA 3 | METAL OBJECT | US | 12 AUG | 118.2                     | 47.24 | 1691 | 1512 |  |
| IOTA 4 | METAL OBJECT | US | 12 AUG | INSUFFICIENT OBSERVATIONS |       |      |      |  |
| IOTA 5 | METAL OBJECT | US | 12 AUG | 118.3                     | 47.28 | 1689 | 1531 |  |
| NU 1   | COURIER 1B   | US | 4 OCT  | 106.8                     | 28.35 | 1225 | 953  |  |
| NU 2   | ROCKET BODY  | US | 4 OCT  | 106.4                     | 28.26 | 1194 | 941  |  |
| XI 1   | EXPLORER 8   | US | 3 NOV  | 112.3                     | 49.97 | 2257 | 412  |  |
| XI 2   | ROCKET BODY  | US | 3 NOV  | 111.9                     | 49.93 | 2228 | 404  |  |
| XI 3   | NONE         | US | 3 NOV  | 109.4                     | 49.39 | 1998 | 407  |  |
| XI 4   | NONE         | US | 3 NOV  | 110.7                     | 50.50 | 2095 | 426  |  |
| PI 1   | TIROS 2      | US | 23 NOV | 98.2                      | 48.53 | 748  | 601  |  |
| PI 2   | ROCKET BODY  | US | 23 NOV | 98.0                      | 48.51 | 729  | 608  |  |
| PI 3   | NONE         | US | 23 NOV | 98.1                      | 48.53 | 727  | 615  |  |
| PI 4   | NONE         | US | 23 NOV | 98.2                      | 48.50 | 713  | 624  |  |

## 1961 LAUNCHES

|                 |               |      |        |                           |       |         |          |         |
|-----------------|---------------|------|--------|---------------------------|-------|---------|----------|---------|
| ALPHA 1         | SAMOS 2       | US   | 31 JAN | 94.8                      | 97.42 | 544     | 466      |         |
| ALPHA 2         | METAL OBJECT  | US   | 31 JAN | 94.7                      | 97.42 | 540     | 464      |         |
| GAMMA 1*        | VENUS PROBE   | USSR | 12 FEB | 300 D                     | 0.58  | 1.019AU | 0.7183AU |         |
| DELTA 1         | EXPLORER 9    | US   | 16 FEB | 109.5                     | 38.97 | 2062    | 362      |         |
| DELTA 2         | ROCKET BODY   | US   | 16 FEB | 118.4                     | 38.84 | 2597    | 632      |         |
| DELTA 3         | NONE          | US   | 16 FEB | INSUFFICIENT OBSERVATIONS |       |         |          |         |
| KAPPA 1         | EXPLORER 10   | US   | 25 MAR | POSITION UNCERTAIN        |       |         |          |         |
| NU 1            | EXPLORER 11   | US   | 27 APR | 107.8                     | 28.71 | 1794    | 471      |         |
| OMICRON 1       | TRANSIT 4A    | US   | 29 JUN | 103.8                     | 66.82 | 995     | 883      | 105;400 |
| OMICRON 2       | INJUN-SR-3    | US   | 29 JUN | 103.8                     | 66.79 | 990     | 889      |         |
| OMICRON 3-206** | METAL OBJECTS | US   | 29 JUN |                           |       |         |          |         |
| RHO 1           | TIROS 3       | US   | 12 JUL | 100.3                     | 47.88 | 818     | 738      |         |

| OBJECTS IN ORBIT       |                  |        |        | NODAL PERIOD              |       | INCLINATION |          | APOGEE |     | PERIGEE |  | TRANSMITTING |  |
|------------------------|------------------|--------|--------|---------------------------|-------|-------------|----------|--------|-----|---------|--|--------------|--|
| OBJECT                 | CODE NAME        | SOURCE | LAUNCH |                           |       |             |          | Km.    | Km. |         |  | FREQ. (MC/S) |  |
| 1961 LAUNCHES (CONT'D) |                  |        |        |                           |       |             |          |        |     |         |  |              |  |
| RHO 2                  | ROCKET BODY      | US     | 12 JUL | 100.3                     | 47.90 | 799         | 751      |        |     |         |  |              |  |
| RHO 3                  | METAL OBJECT     | US     | 12 JUL | 98.8                      | 47.93 | 798         | 610      |        |     |         |  |              |  |
| RHO 4                  | METAL OBJECT     | US     | 12 JUL | 101.9                     | 47.84 | 941         | 766      |        |     |         |  |              |  |
| SIGMA 1                | MIDAS 3          | US     | 12 JUL | 161.5                     | 91.20 | 3582        | 3307     |        |     |         |  |              |  |
| SIGMA 3                | METAL OBJECT     | US     | 12 JUL | 161.2                     | 91.22 | 3559        | 3302     |        |     |         |  |              |  |
| SIGMA 4                | METAL OBJECT     | US     | 12 JUL | 161.9                     | 91.19 | 3572        | 3350     |        |     |         |  |              |  |
| UPSILON 1              | EXPLORER 12      | US     | 16 AUG | INSUFFICIENT OBSERVATIONS |       |             |          |        |     |         |  |              |  |
| A DELTA 1              | MIDAS 4          | US     | 21 OCT | 166.0                     | 95.88 | 3755        | 3496     |        |     |         |  |              |  |
| A DELTA 3              | METAL OBJECT     | US     | 21 OCT | 165.6                     | 96.78 | 3714        | 3505     |        |     |         |  |              |  |
| A DELTA 4              | METAL OBJECT     | US     | 21 OCT | 166.4                     | 95.86 | 3782        | 3499     |        |     |         |  |              |  |
| A ETA 1                | TRANSIT 4B       | US     | 15 NOV | 105.6                     | 32.44 | 1117        | 945      |        |     |         |  |              |  |
| A ETA 2                | TRAAC            | US     | 15 NOV | 105.6                     | 32.43 | 1103        | 960      |        |     |         |  |              |  |
| A ETA 3                | ROCKET BODY      | US     | 15 NOV | 105.5                     | 32.45 | 1114        | 935      |        |     |         |  |              |  |
| 1962 LAUNCHES          |                  |        |        |                           |       |             |          |        |     |         |  |              |  |
| ALPHA 1*               | RANGER 3         | US     | 26 JUN | 406.4D                    | .3988 | 1.163AU     | 0.9839AU |        |     |         |  |              |  |
| ALPHA 2                | ROCKET BODY      | US     | 26 JAN | INSUFFICIENT OBSERVATIONS |       |             |          |        |     |         |  |              |  |
| BETA 1                 | TIROS 4          | US     | 8 FEB  | 100.3                     | 48.32 | 853         | 699      |        |     |         |  |              |  |
| BETA 2                 | ROCKET BODY      | US     | 8 FEB  | 101.3                     | 48.14 | 936         | 710      |        |     |         |  |              |  |
| BETA 3                 | METAL OBJECT     | US     | 8 FEB  | 99.4                      | 48.40 | 768         | 699      |        |     |         |  |              |  |
| BETA 4                 | METAL OBJECT     | US     | 8 FEB  | 100.2                     | 48.27 | 836         | 710      |        |     |         |  |              |  |
| ZETA 1                 | ORB. SOL. OBS. 1 | US     | 7 MAR  | 95.9                      | 32.83 | 589         | 549      |        |     |         |  |              |  |
| ZETA 2                 | ROCKET BODY      | US     | 7 MAR  | 95.9                      | 32.82 | 589         | 550      |        |     |         |  |              |  |
| KAPPA 1                |                  | US     | 9 APR  | 153.0                     | 86.60 | 3432        | 2761     |        |     |         |  |              |  |
| KAPPA 3                |                  | US     | 9 APR  | 152.7                     | 86.59 | 3366        | 2798     |        |     |         |  |              |  |
| KAPPA 4                |                  | US     | 9 APR  | 153.4                     | 86.65 | 3425        | 2798     |        |     |         |  |              |  |
| MU 2                   | ROCKET BODY      | US     | 23 APR | INSUFFICIENT OBSERVATIONS |       |             |          |        |     |         |  |              |  |
| OMICRON 1              | ARIEL            | US/UK  | 26 APR | 100.6                     | 53.86 | 1178        | 396      |        |     |         |  | 136.406      |  |
| OMICRON 2              | ROCKET BODY      | US/UK  | 26 APR | 100.5                     | 53.88 | 1169        | 398      |        |     |         |  |              |  |

| OBJECTS IN ORBIT       |              |        |        |                           |              |            |             |                           |
|------------------------|--------------|--------|--------|---------------------------|--------------|------------|-------------|---------------------------|
| OBJECT                 | CODE NAME    | SOURCE | LAUNCH | NODAL PERIOD              | INCLI-NATION | APOGEE Km. | PERIGEE Km. | TRANSMITTING FREQ. (MC/S) |
| 1962 LAUNCHES (CONT'D) |              |        |        |                           |              |            |             |                           |
| A ALPHA 1              | TIROS 5      | US     | 19 JUN | 100.4                     | 58.07        | 976        | 586         |                           |
| A ALPHA 2              | ROCKET BODY  | US     | 19 JUN | 100.4                     | 58.09        | 972        | 582         |                           |
| A ALPHA 3              | METAL OBJECT | US     | 19 JUN | 101.7                     | 58.19        | 1093       | 590         |                           |
| A ALPHA 4              | METAL OBJECT | US     | 19 JUN | 99.1                      | 57.99        | 865        | 566         |                           |
| A EPSILON 1            | TELSTAR 1    | US     | 10 JUL | 157.6                     | 44.80        | 5635       | 945         |                           |
| A EPSILON 2            | ROCKET BODY  | US     | 10 JUL | 157.5                     | 44.79        | 5627       | 945         |                           |
| A OMICRON 1            |              | US     | 23 AUG | 99.6                      | 98.68        | 855        | 617         |                           |
| A OMICRON 2            |              | US     | 23 AUG | 98.3                      | 98.68        | 759        | 592         |                           |
| A OMICRON 3            |              | US     | 23 AUG | 100.9                     | 98.66        | 962        | 631         |                           |
| A OMICRON 4            |              | US     | 23 AUG | 99.6                      | 98.68        | 846        | 625         |                           |
| A RHO 1*               | MARINER      | US     | 27 AUG | COMPUTATIONS IN PROGRESS  |              |            |             |                           |
| A RHO 2*               | ROCKET BODY  | US     | 27 AUG | COMPUTATIONS IN PROGRESS  |              |            |             |                           |
| A UPSILON 1            |              | US     | 1 SEP  | 92.3                      | 82.79        | 494        | 276         |                           |
| A PSI 1                | TIROS 6      | US     | 18 SEP | 98.7                      | 58.32        | 716        | 680         |                           |
| A PSI 2                | ROCKET BODY  | US     | 18 SEP | 98.6                      | 58.28        | 711        | 679         |                           |
| A PSI 3                | METAL OBJECT | US     | 18 SEP | 99.4                      | 58.44        | 756        | 702         |                           |
| A PSI 4                | METAL OBJECT | US     | 18 SEP | 98.0                      | 58.22        | 683        | 646         |                           |
| B ALPHA 1              | ALOUETTE     | CANADA | 29 SEP | 105.5                     | 80.49        | 1037       | 996         | 136.979; \$136.593        |
| B ALPHA 2              | ROCKET BODY  | US     | 29 SEP | 105.5                     | 80.47        | 1033       | 995         | \$136.077                 |
| B ALPHA 3              | METAL OBJECT | US     | 29 SEP | 105.4                     | 80.48        | 1032       | 990         |                           |
| B ALPHA 4              | METAL OBJECT | US     | 29 SEP | 105.5                     | 80.41        | 1031       | 1002        |                           |
| B GAMMA 1              | EXPLORER 14  | US     | 2 OCT  | 2184.5                    | 42.30        | 96226      | 2558        | 136.440                   |
| B GAMMA 2              | ROCKET BODY  | US     | 2 OCT  | INSUFFICIENT OBSERVATIONS |              |            |             |                           |
| B ETA 1*               | RANGER 5     | US     | 18 OCT | 366 D                     | .39011       | 1.052AU    | .9490AU     |                           |
| B ETA 2*               | ROCKET BODY  | US     | 18 OCT | COMPUTATIONS IN PROGRESS  |              |            |             |                           |
| B THETA 1              |              | USSR   | 20 OCT | 91.9                      | 48.98        | 513        | 230         |                           |
| B KAPPA 1              |              | US     | 26 OCT | 137.8                     | 71.39        | 4712       | 201         |                           |
| B LAMBDA 1             | EXPLORER 15  | US     | 27 OCT | 313.9                     | 18.04        | 17536      | 333         |                           |

OBJECTS IN ORBIT

| <u>OBJECT</u>          | <u>CODE NAME</u> | <u>SOURCE</u> | <u>LAUNCH</u> | <u>NODAL PERIOD</u>       | <u>INCLI-NATION</u> | <u>APOGEE Km.</u> | <u>PERIGEE Km.</u> | <u>TRANSMITTING FREQ. (MC/S)</u> |
|------------------------|------------------|---------------|---------------|---------------------------|---------------------|-------------------|--------------------|----------------------------------|
| 1962 LAUNCHES (CONT'D) |                  |               |               |                           |                     |                   |                    |                                  |
| B LAMBDA 2             | ROCKET BODY      | US            | 27 OCT        | INSUFFICIENT OBSERVATIONS |                     |                   |                    |                                  |
| B MU 1                 | ANNA 1B          | US            | 31 OCT        | 107.8                     | 50.14               | 1172              | 1088               | 162; 324                         |
| B MU 2                 | ROCKET BODY      | US            | 31 OCT        | 107.5                     | 50.14               | 1164              | 1068               |                                  |
| B NU 3*                |                  | USSR          | 1 NOV         | 519 D                     | 2.683               | 1.604AU           | 9237AU             |                                  |
| B TAU 1                |                  | US            | 13 DEC        | 111.8                     | 70.33               | 2385              | 231                |                                  |
| B TAU 2                |                  | US            | 13 DEC        | 113.8                     | 70.33               | 2566              | 236                |                                  |
| B TAU 4                |                  | US            | 13 DEC        | 109.5                     | 70.33               | 2176              | 232                |                                  |
| B TAU 5                |                  | US            | 13 DEC        | 111.7                     | 70.33               | 2374              | 233                |                                  |
| B TAU 6                |                  | US            | 13 DEC        | 113.3                     | 70.33               | 2521              | 236                |                                  |
| B UPSILON 1            | RELAY 1          | US            | 13 DEC        | 185.0                     | 47.53               | 7430              | 1331               | 136.140; \$136.620               |
| B UPSILON 2            | ROCKET BODY      | US            | 13 DEC        | 184.7                     | 47.72               | 7301              | 1434               |                                  |
| B CHI 1                | EXPLORER 16      | US            | 16 DEC        | 104.3                     | 52.05               | 1194              | 736                |                                  |
| B PSI 1                | TRANSIT 5A       | US            | 19 DEC        | 99.1                      | 90.62               | 743               | 686                |                                  |
| B PSI 2                |                  | US            | 19 DEC        | 97.8                      | 90.75               | 716               | 587                |                                  |
| B PSI 3                |                  | US            | 19 DEC        | 99.1                      | 90.63               | 732               | 697                |                                  |
| B PSI 4                |                  | US            | 19 DEC        | 100.3                     | 90.48               | 838               | 699                |                                  |
| 1963 LAUNCHES          |                  |               |               |                           |                     |                   |                    |                                  |
| 1963 3A                |                  | US            | 16 JUN        | 94.6                      | 81.89               | 525               | 465                |                                  |
| 1963 4A                | SYNCOM           | US            | 14 FEB        | INSUFFICIENT OBSERVATIONS |                     |                   |                    |                                  |
| 1963 4B                | ROCKET BODY      | US            | 14 FEB        | INSUFFICIENT OBSERVATIONS |                     |                   |                    |                                  |
| 1963 5A                |                  | US            | 19 FEB        | 97.8                      | 100.50              | 796               | 501                |                                  |
| 1963 5B                |                  | US            | 19 FEB        | 97.8                      | 100.50              | 810               | 488                |                                  |
| 1963 5C                |                  | US            | 19 FEB        | 97.0                      | 100.49              | 759               | 465                |                                  |
| 1963 5D                |                  | US            | 19 FEB        | 98.4                      | 100.49              | 838               | 523                |                                  |
| 1963 8B                |                  | USSR          | 2 APR         | COMPUTATIONS IN PROGRESS  |                     |                   |                    |                                  |
| 1963 9A                | EXPLORER 17      | US            | 3 APR         | 95.5                      | 57.62               | 833               | 253                |                                  |
| 1963 13A               | TELSTAR 2        | US            | 7 MAY         | 225.2                     | 42.76               | 10810             | 962                | 136.049                          |

| <u>OBJECT</u>          | <u>CODE NAME</u>                        | <u>SOURCE</u> | <u>OBJECTS IN ORBIT</u> |                         |       | <u>INCLI-NATION</u> | <u>APOGEE<br/>Km.</u> | <u>PERIGEE<br/>Km.</u> | <u>TRANSMITTING<br/>FREQ. (MC/S)</u> |
|------------------------|---|---------------|-------------------------|-------------------------|-------|---------------------|-----------------------|------------------------|--------------------------------------|
|                        |   |               | <u>LAUNCH</u>           | <u>NODAL<br/>PERIOD</u> |       |                     |                       |                        |                                      |
| 1963 LAUNCHES (CONT'D) |   |               |                         |                         |       |                     |                       |                        |                                      |
| 1963 13B               | ROCKET BODY                             | US            | 7 MAY                   | 224.9                   | 42.74 | 10787               | 968                   |                        |                                      |
| 1963 14A               |   | US            | 9 MAY                   | 166.5                   | 87.43 | 3653                | 3636                  |                        |                                      |
| 1963 14B               |   | US            | 9 MAY                   | 166.5                   | 87.35 | 3673                | 3618                  |                        |                                      |
| 1963 14C               |   | US            | 9 MAY                   | 166.5                   | 87.34 | 3683                | 3608                  |                        |                                      |
| 1963 14E               |   | US            | 9 MAY                   | 166.1                   | 87.47 | 3669                | 3591                  |                        |                                      |
| 1963 14F               |   | US            | 9 MAY                   | 166.9                   | 87.42 | 3672                | 3648                  |                        |                                      |
| 1963 14G               |   | US            | 9 MAY                   | 166.3                   | 87.33 | 3639                | 3638                  |                        |                                      |
| 1963 14H               |   | US            | 9 MAY                   | 166.5                   | 87.42 | 3704                | 3588                  |                        |                                      |
| 1963 17A               |   | USSR          | 22 MAY                  | 93.6                    | 48.98 | 659                 | 251                   |                        |                                      |
| 1963 17C               |   | USSR          | 22 MAY                  | 94.9                    | 49.19 | 698                 | 340                   |                        |                                      |
| 1963 17G               |   | USSR          | 22 MAY                  | 91.7                    | 49.01 | 480                 | 240                   |                        | 150; 400                             |
| 1963 22A               |   | US            | 16 JUN                  | 99.8                    | 90.01 | 765                 | 723                   |                        |                                      |
| 1963 22B               |   | US            | 16 JUN                  | 99.8                    | 90.00 | 768                 | 719                   |                        |                                      |
| 1963 22C               |   | US            | 16 JUN                  | 101.3                   | 90.20 | 904                 | 729                   |                        |                                      |
| 1963 22D               |   | US            | 16 JUN                  | 98.2                    | 89.83 | 785                 | 556                   |                        |                                      |
| 1963 24A               | TIROS 7                                 | US            | 19 JUN                  | 97.4                    | 58.23 | 639                 | 633                   |                        | 136.234; 136.922                     |
| 1963 24B               | ROCKET BODY                             | US            | 19 JUN                  | 97.3                    | 58.23 | 638                 | 627                   |                        |                                      |
| 1963 24C               | METAL OBJECT                            | US            | 19 JUN                  | 97.9                    | 58.37 | 663                 | 652                   |                        |                                      |
| 1963 24D               | METAL OBJECT                            | US            | 19 JUN                  | 96.9                    | 58.09 | 638                 | 582                   |                        |                                      |
| 1963 25B               |   | US            | 27 JUN                  | 132.5                   | 82.13 | 4117                | 337                   |                        |                                      |
| 1963 26A               | RESEARCH<br>SATELLITE FOR<br>GEOPHYSICS | US            | 28 JUN                  | 102.0                   | 49.75 | 1290                | 426                   |                        |                                      |
| 1963 27A               |   | US            | 29 JUN                  | 94.8                    | 82.32 | 528                 | 481                   |                        |                                      |
| 1963 27B               |   | US            | 29 JUN                  | 94.1                    | 82.31 | 481                 | 462                   |                        |                                      |
| 1963 30 A              |   | US            | 19 JUL                  | 167.9                   | 88.35 | 3752                | 3651                  |                        |                                      |
| 1963 30B               |   | US            | 19 JUL                  | 167.9                   | 88.41 | 3730                | 3673                  |                        | 136.891                              |
| 1963 30C               |   | US            | 19 JUL                  | 167.5                   | 88.31 | 3719                | 3656                  |                        |                                      |
| 1963 30D               |   | US            | 19 JUL                  | 168.0                   | 88.60 | 3927                | 3486                  |                        |                                      |
| 1963 30E               |   | US            | 19 JUL                  | 168.3                   | 88.52 | 3763                | 3674                  |                        |                                      |

| OBJECT                 | CODE NAME   | SOURCE | OBJECTS IN ORBIT |                           |                  |               | PERIGEE<br>Km. | TRANSMITTING<br>FREQ. (MC/S)                                 |
|------------------------|-------------|--------|------------------|---------------------------|------------------|---------------|----------------|--|
|                        |             |        | LAUNCH           | NODAL<br>PERIOD           | INCLI-<br>NATION | APOGEE<br>Km. |                |  |
| 1963 LAUNCHES (CONT'D) |             |        |                  |                           |                  |               |                |  |
| 1963 31A               | SYNCOM 2    | US     | 26 JUL           | 1436.2                    | 32.88            | 35794         | 35786          | \$136.980; \$136.468<br>\$1814.069; \$1815.794<br>\$1820.177 |
| 1963 31B               | ROCKET BODY | US     | 26 JUL           | INSUFFICIENT OBSERVATIONS |                  |               |                |  |
| 1963 33A               |             | USSR   | 6 AUG            | 90.8                      | 49.03            | 385           | 247            |  |
| 1963 38A               |             | US     | 28 SEP           | 107.1                     | 89.91            | 1120          | 1063           |  |
| 1963 38B               |             | US     | 28 SEP           | 107.4                     | 89.90            | 1134          | 1074           |  |
| 1963 38C               |             | US     | 28 SEP           | 107.4                     | 89.90            | 1133          | 1074           | 136.651  |
| 1963 38D               |             | US     | 28 SEP           | 107.4                     | 89.93            | 1138          | 1069           |  |
| 1963 39A               |             | US     | 17 OCT           | INSUFFICIENT OBSERVATIONS |                  |               |                |  |
| 1963 39B               |             | US     | 17 OCT           | INSUFFICIENT OBSERVATIONS |                  |               |                |  |
| 1963 39C               |             | US     | 17 OCT           | INSUFFICIENT OBSERVATIONS |                  |               |                |  |
| 1963 42A               |             | US     | 29 OCT           | 88.8                      | 89.90            | 213           | 213            |  |
| 1963 42B               |             | US     | 29 OCT           | 93.1                      | 89.97            | 565           | 283            |  |
| 1963 43A               | POLYOT 1    | USSR   | 1 NOV            | 102.4                     | 58.90            | 1406          | 340            |  |
| 1963 43B               |             | USSR   | 1 NOV            | 102.1                     | 58.62            | 1381          | 336            |  |
| 1963 43C               |             | USSR   | 1 NOV            | 100.4                     | 58.94            | 1256          | 304            |  |
| 1963 43D               |             | USSR   | 1 NOV            | 101.6                     | 59.81            | 1339          | 334            |  |
| 1963 46A               | EXPLORER 18 | US     | 27 NOV           | 5585.                     | 33.35            | 195572        | 194            | 136.110  |
| 1963 47A               | CENTAUR 2   | US     | 27 NOV           | 107.6                     | 30.39            | 1766          | 484            |  |
| 1963 47B               |             | US     | 27 NOV           | 107.1                     | 30.08            | 1615          | 584            |  |
| 1963 47C               |             | US     | 27 NOV           | 107.3                     | 30.07            | 1637          | 584            |  |
| 1963 47D               |             | US     | 27 NOV           | 107.8                     | 29.94            | 1633          | 637            |  |
| 1963 47E               |             | US     | 27 NOV           | 108.2                     | 30.47            | 1746          | 556            |  |
| 1963 47F               |             | US     | 27 NOV           | 108.5                     | 30.47            | 1753          | 574            |  |
| 1963 47G               |             | US     | 27 NOV           | 107.6                     | 30.00            | 1646          | 605            |  |
| 1963 49A               |             | US     | 5 DEC            | 106.9                     | 89.98            | 1080          | 1076           |  |
| 1963 49B               |             | US     | 5 DEC            | 107.2                     | 89.97            | 1124          | 1063           |  |

OBJECTS IN ORBIT

| <u>OBJECT</u>          | <u>CODE NAME</u> | <u>SOURCE</u> | <u>LAUNCH</u> | <u>NODAL PERIOD</u> | <u>INCLI-NATION</u> | <u>APOGEE Km.</u> | <u>PERIGEE Km.</u> | <u>TRANSMITTING FREQ. (MC/S)</u> |
|------------------------|------------------|---------------|---------------|---------------------|---------------------|-------------------|--------------------|----------------------------------|
| 1963 LUANCHES (CONT'D) |                  |               |               |                     |                     |                   |                    |                                  |
| 1963 49C               |                  | US            | 5 DEC         | 107.2               | 89.97               | 1118              | 1068               |                                  |
| 1963 49D               |                  | US            | 5 DEC         | 107.1               | 89.97               | 1116              | 1065               |                                  |
| 1963 49E               |                  | US            | 5 DEC         | 107.2               | 90.01               | 1127              | 1059               |                                  |
| 1963 50A               | COSMOS 23        | USSR          | 13 DEC        | 92.1                | 48.96               | 527               | 237                |                                  |
| 1963 50B               |                  | USSR          | 13 DEC        | 91.9                | 49.00               | 513               | 228                |                                  |
| 1963 52B               |                  | USSR          | 19 DEC        | 89.3                | 65.01               | 288               | 192                |                                  |
| 1963 53A               | EXPLORER 19      | US            | 19 DEC        | 115.9               | 78.60               | 2387              | 601                | 136.621                          |
| 1963 53B               |                  | US            | 19 DEC        | 115.8               | 78.61               | 2393              | 590                |                                  |
| 1963 53C               |                  | US            | 19 DEC        | 116.0               | 78.62               | 2400              | 597                |                                  |
| 1963 53D               |                  | US            | 19 DEC        | 116.0               | 78.59               | 2398              | 596                |                                  |
| 1963 53E               |                  | US            | 19 DEC        | 115.9               | 78.57               | 2399              | 592                |                                  |
| 1963 53F               |                  | US            | 19 DEC        | 115.9               | 78.62               | 2397              | 592                |                                  |
| 1963 53G               |                  | US            | 19 DEC        | 115.9               | 78.58               | 2395              | 592                |                                  |
| 1963 54A               | TIROS 8          | US            | 21 DEC        | 99.3                | 58.47               | 761               | 695                | 136.233; 136.922                 |
| 1963 54B               |                  | US            | 21 DEC        | 99.3                | 58.49               | 753               | 697                |                                  |
| 1963 54C               |                  | US            | 21 DEC        | 101.0               | 58.45               | 928               | 691                |                                  |
| 1963 55B               |                  | US            | 21 DEC        | 91.6                | 64.52               | 393               | 315                |                                  |
| 1964 LAUNCHES          |                  |               |               |                     |                     |                   |                    |                                  |
| 1964 1A                |                  | US            | 11 JAN        | 103.5               | 69.92               | 937               | 906                |                                  |
| 1964 1B                | GGSE             | US            | 11 JAN        | 103.5               | 69.96               | 941               | 902                | 136.319                          |
| 1964 1C                | EGRS             | US            | 11 JAN        | 103.5               | 69.90               | 937               | 906                | 136.803                          |
| 1964 1D                | SOLAR RADIATION  | US            | 11 JAN        | 103.5               | 69.89               | 937               | 906                | 136.880                          |
| 1964 1E                |                  | US            | 11 JAN        | 103.5               | 69.88               | 951               | 893                |                                  |

- \* APHELION PERIHELION IN ASTRONOMICAL UNITS, INCLINATION TO ECLIPTIC.
- \*\* TWO HUNDRED AND FOUR METAL OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1961 OMICRON 1 AND 1961 OMIRCON 2. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LISTS.
- \$ TRANSMITTING ON COMMAND ONLY.
- & TRANSMITTING WHEN IN SUNLIGHT ONLY.

PLEASE ADD THE FOLLOWING TO THE DECAYED OBJECTS LIST

| <u>OBJECT</u> | <u>CODE NAME</u> | <u>SOURCE</u> | <u>LAUNCH</u> | <u>DECAY</u> |
|---------------|------------------|---------------|---------------|--------------|
| 1963 3C       |                  | US            | 16 JAN        | 31 DEC 63    |
| 1963 50C      |                  | USSR          | 13 DEC        | 3 JAN 64     |
| 1963 50D      |                  | USSR          | 13 DEC        | 1 JAN 64     |
| 1963 55A      |                  | US            | 21 DEC        | 9 JAN 64     |